

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. 98-184

WASTE DISCHARGE REQUIREMENTS  
FOR  
STANISLAUS COUNTY DEPARTMENT OF PUBLIC WORKS  
FINK ROAD LANDFILL FACILITY  
CLASS II AND CLASS III LANDFILLS  
CLASS II SURFACE IMPOUNDMENTS  
STANISLAUS COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. The County of Stanislaus, Department of Public Works, (hereafter Discharger) owns and operates the Fink Road Landfill facility. The facility was previously regulated by WDR No. 94-257 in conformance with Title 27, California Code of Regulations (CCR), Division 2, Subdivision 1 (hereafter Title 27).
2. On 21 July 1998 the Discharger submitted a Report of Waste Discharge requesting approval of an engineered alternative for the design of LF-2, Cell 3 and future cells, and surface impoundment SI-1.
3. The Fink Road Landfill facility is a 219-acre disposal site, comprised of Assessor Parcel Number 27-17-40. The site is 3.5 miles west of Crows Landing, in Section 30, T6S, R7E, MDB&M, as shown in Attachment "A", which is incorporated herein and made part of this Order. The area served by the landfill is Stanislaus County.
4. The waste management facility consists of an inactive 18.3-acre Class III municipal solid waste landfill, (LF-1); an active 92.3-acre Class III municipal solid waste landfill (LF-2) with seven cells; an active 37-acre Class II ash monofill, (LF-3) with six cells; a 1-acre Class II surface impoundment (SI-1) for impoundment of leachate from the leachate collection and removal system (LCRS) of LF-3; and a 1.4-acre Class II surface impoundment (SI-2) for impoundment of leachate from the LCRS of LF-2.
5. The waste management units (WMUs) at Fink Road are described in the following table:

Unit	Classification	Description of Liner Components (top to bottom)	Status
LF-1	Class III landfill	Unlined and no LCRS	Filled and closed- final cap constructed in 1997
LF-2	Class III landfill (Cell 1)	1 ft. operations layer, nonwoven fabric, 6 in. LCRS drainage layer, non woven fabric, 1 ft. low permeability soil layer ( $K_s = 1 \times 10^{-6}$ cm/sec)	Filled, with interim cover
LF-2	Class III landfill (Cell 2)	15 in. operations layer, nonwoven fabric, 6 in. LCRS drainage layer, 60 mil textural HDPE, 2 ft. low permeability soil layer ( $K_s = 1 \times 10^{-7}$ cm/sec)	Operating, nearing capacity
LF-3	Class II ash monofill (Cell 1)	12 in. soil operations layer, nonwoven fabric, 8 in. LCRS drainage layer, non woven fabric, 2 ft. low permeability soil layer ( $K_s = 1 \times 10^{-6}$ cm/sec)	At capacity

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Unit	Classification	Description of Liner Components (top to bottom)	Status
LF-3	Class II ash monofill (Cell 2)	15 in. operations layer, nonwoven fabric, 6 in. LCRS drainage layer, 60 mil textural HDPE, 2 ft. low permeability soil layer ( $K_s 1 \times 10^{-7}$ cm/sec)	Operating
SI-1	Class II surface impoundment	1 ft. soil cover, 2 ft. low permeability soil layer ( $K_s 1 \times 10^{-6}$ cm/sec), nonwoven fabric, 8 in. LCRS drainage layer, nonwoven fabric, 2 ft. low permeability soil layer ( $K_s 1 \times 10^{-6}$ cm/sec)	Operating
SI-2	Class II surface impoundment	80 mil HDPE, geonet, 80 mil HDPE, 2 ft. low permeability soil layer ( $K_s 1 \times 10^{-6}$ cm/sec)	Operating

7. Ogden Martin Systems of Stanislaus, Incorporated (OMSS), (formerly Stanislaus Waste-to-Energy Company or SWEC), constructed in 1988, operates a waste-to-energy cogeneration facility (hereafter OMSS plant) at the Fink Road Landfill. The OMSS plant occupies a 16.5 acre area at the southwest corner of the site. The OMSS plant generates electricity from combustion of municipal solid waste. Boiler ash generated as a combustion residue has been discharged to LF-3 since the fall of 1988. The addition of a lime-water mixture to de-acidify contaminated flue gases and the quenching of ashes with water at the OMSS plant results in generation of significant moisture within the boiler ash.
8. On 25 March 1991, the Discharger submitted a Combustion Ash Moisture Monitoring Plan which was implemented beginning 1 May 1991.

#### WASTES AND THEIR CLASSIFICATION

9. The 18.3-acre LF-1 was permitted for the disposal of municipal solid waste, infectious waste, and construction debris. These wastes are classified as "nonhazardous solid waste" or "inert waste" using the criteria set forth in Title 27. Since July 1990, LF-1 received about 175 tons per day of municipal solid waste. Landfill operations in LF-1 ceased in June 1993 following the construction and discharge of waste to LF-2, Cell 1.
10. The 92.3-acre LF-2 is currently used for the disposal of municipal solid waste, treated medical waste, and construction debris. These wastes are classified as "nonhazardous solid waste" or "inert waste" using the criteria set forth in Title 27. LF-2 began receiving wastes in April 1993.
11. The Discharger also proposes to discharge wastes containing greater than one percent (>1%) friable asbestos for disposal in LF-2. These wastes are classified as 'hazardous' under Title 22 of the CCR. However, because these wastes do not pose a threat to ground water quality, Section 25143.7 of the Health and Safety Code permits their disposal in any landfill which has WDRs that specifically permit the discharge, provided that the wastes are handled and disposed of in accordance with federal statutes and regulations.

12. About 300 tons per day of boiler ash is generated from the OMSS plant. The Discharger proposes to continue to discharge boiler ash from the OMSS plant to LF-3, a separate monofill unit designed and operated to isolate this waste from putrescible organic matter which could produce acidic leachate. Five additional cells will be constructed within LF-3. LF-3, Cell 1 reached capacity in May 1994. LF-3, Cell 2 is constructed and receiving ash from the OMSS plant.
13. The OMSS plant ash contains soluble cadmium and lead measured by the California Waste Extraction Test and total lead concentrations that exceed Soluble Threshold Limit Concentrations and Total Threshold Limit Concentrations (STLCs and TTLC) regulatory thresholds, respectively, for toxic and hazardous waste established by the Department of Toxic Substances Control (DTSC) and specified in Title 22, CCR. On 8 February 1990, DTSC approved a request to manage and classify the boiler ash as 'non-hazardous' because of mitigating characteristics.

#### DESCRIPTION OF THE SITE

14. The site is within dissected alluvial fans at the western margin of the San Joaquin Valley with elevations ranging from 240 to 350 feet above mean sea level (MSL).
15. Land within 1,000 feet of the site is used for agriculture, including grazing, row crops and orchards. The OMSS plant is also adjacent to the landfill areas.
16. Soils immediately underlying the WMUs are alluvial deposits consisting predominately of interbedded clays, silts, and sands with minor amounts of gravels. Permeabilities of the interbedded layers displayed values ranging from  $1 \times 10^{-4}$  to  $1 \times 10^{-9}$  cm/sec based on laboratory tests.
17. Surface soils consist of 2.5 to 14.5 feet thick of stiff silty clays with traces of sand and gravel. Below the surface soils, interbedded layers of medium dense to very dense sand and gravels and stiff to hard silts and clays of the Tulare formation are present.
18. Two faults which have the potential to affect the facility are the potentially active Ortigalita fault, about 20 miles south of the site, and the active Calaveras fault, about 28 miles southwest of the site.
19. Meteorological measurements made in Modesto between 1951 and 1974 were assumed by Stanislaus County to be representative for the Fink Road site. Based on these assumptions the site receives a yearly average of 11.8 inches of precipitation and has a mean evaporation rate of 33.9 inches per year which equates to an annual net evaporation of +22.1 inches.
20. The 100-year, wet year precipitation for the site is 21.2 inches as calculated by the California Department of Water Resources Bulletin No. 195. The 1,000-year, 24-hour precipitation event for the site is 3.53 inches as calculated by the California Department of Water Resources' 1982 "Rainfall-Depth-Duration Frequency for California", Division of Planning.
21. The site is not within a 100-year floodplain, as determined from Federal Flood Insurance Map, Community Panel No. 060384-0700A.

22. Surface drainage for the northern quarter of the site is to the South Fork of Little Salado Creek, a tributary of the San Joaquin River. The remaining three quarters of the site drains to the east via a closed conduit under Interstate 5 and the California Aqueduct and thence via an open channel to Crow Creek, a tributary of the San Joaquin River.
23. Existing and probable future beneficial uses of these surface waters are municipal and domestic supply, agricultural supply, industrial process supply; recreation; wildlife habitat; warm water freshwater habitat; fish migration; and fish spawning.
24. Shallow ground water is unconfined and encountered at depths from 4 to 91 feet below ground surface. Shallow ground water is contained within the Tulare Formation, a major aquifer of the San Joaquin Valley. Ground water flows generally toward the east, with a steep gradient of two to four percent.
25. The beneficial uses of ground water in the vicinity of the site are municipal and domestic, irrigation, stock watering, and industrial process supply.

### GROUNDWATER CONTAMINATION

26. There has been a release of wastes from LF-1 to groundwater as indicated by concentrations of various inorganics and volatile organic compounds (VOCs) in MW-9 which exceed background and water quality objectives. Several VOCs have been detected in MW-9 since 1991. These VOCs include 1,1-dichloroethane, benzene, chlorobenzene, cis-1,2-dichloroethene, methylene chloride, tetrachloroethene, trichloroethene, 1,1-dichloroethene, 1,4-dichlorobenzene, trichlorofluoromethane, and vinyl chloride. During 1997, 1,1-dichloroethane, benzene, and methylene chloride in MW-9 exceeded maximum contaminant levels for drinking water. Maximum concentrations of these VOCs detected in MW-9 during 1997 were 9.0, 1.3, and 24 µg/l, respectively.
27. The Discharger has implemented the first phase of corrective action for VOCs and inorganic constituents detected in groundwater downgradient of LF-1. The first phase included construction of a final cap over LF-1. The second phase which includes installation of a landfill gas collection system is scheduled for 1998. The Discharger proposes corrective action monitoring for LF-1 to assess the performance of the corrective actions.
28. The Discharger is currently conducting evaluation monitoring for SI-1, SI-2, LF-2, Cell 2, and LF-3, Cell 2 due to detections of VOCs and elevated concentrations of inorganics in the lysimeters beneath these waste management units. An Evaluation Monitoring Report is due by **30 January 1999**. These WDRs also require a Feasibility Study for a Corrective Action Program be submitted by **30 January 1999**.

### OPERATION OF FACILITIES

29. Boiler ash is transported by truck to LF-3. Due to quenching of the ash prior to discharge, the Discharger has implemented a load checking plan to prevent the discharger of free moisture to LF-3.
30. LF-1 has reached capacity and LF-2 will reach capacity, at the earliest, by the year 2009 (19 year life expectancy). The total capacity of LF-1 and LF-2 is 6,632,000 cubic yards. LF-3 will reach its 2,030,000 cubic yard capacity, at the earliest, by the year 2022 (31 year life expectancy).

31. Leachate from the LF-3, Class II waste disposal cells exceeds the capacity of surface impoundment SI-1. The Discharger proposes to reconstruct SI-1 to increase the impoundment storage capacity from approximately 218,000 to 5 million gallons and replace the existing two-foot thick low-permeability layer with an engineered alternative as described below in Finding 34.
32. The Discharger has indicated that LF-2, Cell 2 will reach capacity by the end of 1998. The Discharger has proposed an engineered alternative from the prescriptive liner requirements of Title 27 for the next cell, LF-2, Cell 3 and future cells.

## **DESIGN OF WASTE MANAGEMENT UNITS**

### **Engineered Alternatives**

33. Section 20080 of Title 27 requires the submittal of a demonstration that the prescriptive standard is not feasible because it is unreasonably and unnecessarily burdensome or impractical, the engineered alternative must afford equivalent protection against water quality impairment. The Board has routinely approved the substitution of geosynthetic clay liners for field constructed clay at other sites since March 1995. The Discharger was not required to repeat the demonstration which had been made for other landfills because there are no significant differences in the characteristics of already approved liners and the liner proposed for the Fink Road Landfill. Randall Wall, a California registered Civil Engineer, has certified that the engineered alternative design using a geosynthetic clay liner (GCL) instead of two feet of low permeability clay as a barrier layer will provide equivalent protection against water quality impairment.

### **Class II Surface Impoundments**

34. The Discharger proposes an engineered alternative to the prescriptive liner requirements of Title 27 for the reconstructed surface impoundment SI-1. The engineered alternative for SI-1 consists of, described from top to bottom, 80-mil HDPE geomembrane primary liner, HDPE geonet, 80-mil HDPE geomembrane secondary liner, and a GCL as shown in Attachment C which is incorporated herein and made a part of this Order. The engineered alternative liner system was approved in Board Order 96-287.
35. The Discharger proposes an underdrain system beneath the base of SI-1 to alleviate future potential liner uplift if the current upward historical trend in groundwater elevations continues. This underdrain system consists of, from top to bottom, a one-foot thick gravel drainage layer and an 8 ounce-per-square geotextile. Groundwater collected will gravity flow to a sump connected to a riser pipe for removal. The groundwater will be sampled, prior to discharge, for those constituents listed for groundwater and leachate monitoring in the attached Monitoring and Reporting Program No. 98-184. If the groundwater is determined to not be impacted then it may be discharged to the stormwater retention basin. Discharges of groundwater from the stormwater retention basin offsite may require an NPDES permit. If the groundwater is determined to be impacted it should be discharged to surface impoundment SI-2. These WDRs require the Discharger to submit a water balance report for SI-2 to estimate the available capacity for such discharge.

36. The Discharger will have to decommission MW-15 during reconstruction of SI-1. These WDRs require the Discharger to submit a work plan to replace MW-15 30 days prior to start of liner construction.

### **Class III Landfill**

37. The Discharger proposes an engineered alternative to the prescriptive liner requirements of Title 27 for LF-2, Cell 3 and future modules. The engineered alternative consists of an operations layer and two different liner types listed below and as shown in Attachment C. Each of these composite liners is described from top to bottom as follows:

The base liner will consist of:

- 18-inch operations layer
- geotextile separator
- 6 inches of LCRS gravel (hydraulic conductivity 0.01 cm/sec or greater)
- 60-mil HDPE geomembrane
- geosynthetic clay liner (maximum hydraulic conductivity  $5 \times 10^{-9}$  cm/sec)

The sideslope liner will consist of:

- 24 inches of on-site sandy soils as drainage layer (hydraulic conductivity  $1 \times 10^{-3}$  cm/sec or greater and less than 15% silt and clay size particles)
- geotextile cushion
- 60-mil HDPE geomembrane
- geosynthetic clay liner (maximum hydraulic conductivity  $5 \times 10^{-9}$  cm/sec)

### **CERTIFICATION**

38. Stanislaus County has indicated that a registered civil engineer or certified engineering geologist will certify that WMUs at this facility meet the prescriptive standards and performance goals of Title 27.

### **CEQA AND OTHER CONSIDERATIONS**

39. The action to revise WDRs for this facility is exempt from the provisions of the California Environmental Quality Act, (Public Resources Code, Section 21000, et seq.), in accordance with Title 14, CCR, Section 15301.
40. On 9 October 1991, the United States Environmental Protection Agency (EPA) promulgated regulations (Title 40, Code of Federal Regulations, Parts 257 and 258, "federal MSW regulations" or "Subtitle D") that apply, in California, to dischargers who own or operate landfill units at which municipal solid waste (MSW) is discharged. The majority of the federal MSW regulations became effective on the "Federal Deadline", 9 October 1993.

41. This order implements:

- a. The Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basins, Third Edition;
- b. The prescriptive standards and performance goals of Title 27, Division 2, Subdivision 1 of the California Code of Regulations.
- c. The prescriptive standards and performance criteria of Part 258, Title 40 of the Code of Federal Regulations, Subtitle D of the Resource Conservation and Recovery Act; and
- d. State Water Resources Control Board Resolution No. 93-62, Policy for Regulation of Discharges of Municipal Solid Waste, adopted 17 June 1993.

**PROCEDURAL REQUIREMENTS**

42. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.
43. The Board has notified the Discharger and interested agencies and persons of its intention to revise the WDRs for this facility.
44. In a public hearing, the Board heard and considered all comments pertaining to this facility and discharge.

IT IS HEREBY ORDERED that Order No. 94-257 is rescinded and it is further ordered that Stanislaus County and its agents, assigns and successors, in order to meet the provisions contained in Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

**A. DISCHARGE PROHIBITIONS:**

1. The discharge of 'hazardous waste' at this site, except for waste that is hazardous due only to its friable asbestos content, is prohibited. The discharge of 'designated waste' at this site is prohibited, except for the discharge of OMSS incinerator ash to LF-3 and the discharge of leachate from the LCRS of LF-3 and LF-2 to SI-1 and SI-2, respectively. For the purposes of this Order, the terms 'hazardous waste' and 'designated waste' are as defined in Title 27.
2. The discharge of semi-solid waste (i.e., waste containing less than 50 percent solids) or liquid waste to the landfill units LF-1, LF-2 and LF-3 is prohibited..
3. The discharge to the landfill units (LF-1, LF-2, and LF-3) of solid waste containing free liquid or which may contain liquid in excess of the moisture-holding capacity as a result of waste management operations, compaction, or settlement is prohibited.
4. Discharges of waste to either a landfill unit that has not received wastes or to a lateral expansion of a landfill unit are prohibited, unless the discharge is to an area equipped with a containment system which meets the requirements in **B. Specifications**, below.

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5. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses or to groundwater is prohibited.
6. The discharge of waste from surface impoundments is prohibited other than allowed under Discharge Prohibitions No. 1.
7. The discharge of waste to ponded water from any source is prohibited.
8. The discharge of waste within 50 feet of surface waters is prohibited.
9. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products which in turn:
  - a. require a higher level of containment than provided by the unit,
  - b. are 'restricted hazardous wastes', or
  - c. impair the integrity of containment structures,is prohibited.

**B. DISCHARGE SPECIFICATIONS:**

**General Specifications**

1. Wastes shall be discharged only into and confined to WMUs specifically designed for their containment and/or treatment.
2. Non-hazardous boiler ash from the OMSS plant shall only be discharged to LF-3, a separate monofill unit which is designed and operated to isolate this waste from other wastes which could produce acidic leachate.
3. The handling and disposal of friable asbestos-containing wastes at this site shall be in accordance with all applicable federal and state laws and regulations.
4. The discharge of liquid waste to SI-1 is limited to leachate from LF-3's LCRS and SI-1's LCRS only.
5. The discharge of liquid waste to SI-2 is limited to leachate from LF-2's LCRS, SI-2's LCRS, and groundwater extracted from the LF-2, Cell 3 underdrain system only.
6. The discharge of groundwater from the underdrain system beneath LF-2, Cell 3 to an area outside of LF-2, Cell 3 or to SI-2 must be approved by the Executive Officer.
7. A minimum separation of five feet shall be maintained between wastes or leachate and the highest anticipated elevation of underlying ground water including the capillary fringe.
8. All wells within 500 feet of a WMU shall be sealed or abandoned to the satisfaction of the Stanislaus County Department of Environmental Resources prior to the discharge of waste to the unit. A record of the sealing and/or abandonment of such wells shall be sent to the Board.



9. Water used for site maintenance shall be limited to the minimum amount necessary for dust control except for irrigation of exterior slopes of screening berms to promote vegetative growth.
10. Leachate generation by a landfill unit leachate collection and removal system (LCRS) shall not exceed 85% of the design capacity of the sump pump. If leachate generation exceeds this value or if the depth of fluid in an LCRS exceeds the minimum needed for pump operations, then the Discharger shall immediately cease the discharge of sludges and other high-moisture wastes to the landfill module and shall notify the Board in writing within seven days. Notification shall include a time table for remedial or corrective action necessary to reduce leachate production.

#### **General WMU Construction**

11. All containment systems shall include a leachate collection and removal system (LCRS) which shall convey all leachate which reaches the liner to an appropriately lined sump or other appropriately lined collection area. The LCRS shall not rely upon unlined or clay-lined areas for such conveyance.
12. New clay liners shall have a maximum hydraulic conductivity of  $1 \times 10^{-7}$  cm/sec and a minimum relative compaction of 90 percent. Landfill caps shall have a maximum hydraulic conductivity of  $1 \times 10^{-6}$  cm/sec and a minimum relative compaction of 90 percent. Hydraulic conductivities of liner materials shall be determined by laboratory tests using solutions with similar properties as the fluids that will be contained. Hydraulic conductivities of cap materials shall be determined by laboratory tests using water. Hydraulic conductivities determined through laboratory methods shall be confirmed by field testing in accordance with the Standard Provisions and Reporting Requirements as described in Provision D.1. Construction methods and quality assurance procedures shall be sufficient to ensure that all parts of the liner and cap meet the hydraulic conductivity and compaction requirements.
13. LCRSs shall be designed, constructed, and maintained to collect twice the anticipated daily volume of leachate generated by the WMU and to prevent the buildup of hydraulic head on the underlying liner at any time. The depth of fluid in any LCRS sump shall be kept at or below 6 inches, the minimum needed to ensure efficient pump operation.
14. Each landfill unit phase constructed after the effective date of this Order shall be designed and constructed in accordance with Title 27 and this Order and approved by Board staff prior to operation. Ninety days prior to the beginning of construction for each new construction phase, a Final Design Report shall be submitted to the Board for review and approval and shall include, but not be limited to, the engineered design plans for the WMU, the contract specifications, a construction quality assurance (CQA) plan to verify that construction specifications will be met, and a revised water quality monitoring plan. Approval of the final design report shall be obtained from Board staff prior to construction of the landfill liner or cap. A final construction report shall be submitted for approval by Board staff after each phase of construction and prior to the discharge of waste into the constructed phase. The final construction report shall include, but not be limited to, as-built plans for the WMU, a

CQA report with a written summary of the CQA program and all test results, analyses, and copies of the inspector's original field notes, and a certification as described in the Standard Provisions and Reporting Requirements.

### **Supervision and Certification of Construction**

15. All containment structures shall be designed and constructed under the direct supervision of a California registered civil engineer or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards and performance goals of Title 27 prior to waste discharge.

### **Protection from Storm Events**

16. WMUs shall be designed, constructed, and operated to prevent inundation or washout due to floods with a 100-year return period. WMUs and related containment structures shall be constructed and maintained to prevent, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping under 100-year, 24-hour precipitation conditions.
17. Precipitation and drainage control systems shall be designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 1,000-year, 24-hour precipitation conditions, as described in Finding No. 20 above.
18. Annually, prior to the anticipated rainy season, but no later than **1 November**, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the site and to prevent surface drainage from contacting or percolating through wastes. The Discharger shall submit an annual report to the Regional Board by **15 November** each year describing measures taken to comply with this specification.
19. During the rainy season, a minimum of two-foot thickness of low permeability cover shall be maintained over all but the active disposal area of the landfill unit. The active disposal area shall be confined to the smallest area practicable, based on the anticipated quantity of waste discharge and other waste management facility operations.

### **Surface Impoundment Specifications**

20. SI-1 shall be reconstructed as an engineered alternative as specified in Finding 34 .
21. SI-1 and SI-2 shall be operated to maintain a freeboard of two feet at all times.
22. Any direct-line discharge to a surface impoundment shall have fail-safe equipment or operating procedures to prevent overfilling.
23. Leachate removed from a surface impoundment LCRS shall be discharged to the impoundment from which it originated.

24. Solids which accumulate in any surface impoundments shall be periodically removed to maintain minimum freeboard requirements and to maintain sufficient capacity for landfill and surface impoundment leachate and for the discharge of wastes. Prior to removal of these solids, sufficient samples shall be taken for their characterization and classification pursuant to Title 27. The rationale for the sampling protocol used, the results of this sampling, and a rationale for classification of the solids shall be submitted to Board staff for review. The solids may be discharged to the Class III landfill units only if Board staff determine that the solids qualify for classification as 'nonhazardous solid waste' or 'inert waste'.

#### **Landfill Specifications**

25. Municipal solid waste shall be discharged to either (1) that portion of a module which received wastes (i.e. that active portion of the module which is within the boundaries of the Existing Footprint), or (2) to an area equipped with a containment system which meets the additional requirements for both liners and leachate collection systems specified in Finding 37 and Attachment C of this Order.
26. During the rainy season, the landfill shall be operated and graded to minimize leachate.
27. Landfill leachate shall be discharged to a Class II surface impoundment or a community sewerage treatment facility.
28. Leachate generated by a landfill unit LCRS shall not exceed 85% of the design capacity of the LCRS or the sump pump. If leachate generation exceeds this value and/or if the depth of fluid in the LCRS sump exceeds 24 inches, then the Discharger shall immediately cease the discharge of sludge and other high-moisture wastes to the landfill unit and shall notify the Board in writing within seven days. Notification shall include a time table for a corrective action necessary to reduce leachate production.

#### **WMU CLOSURE SPECIFICATIONS**

29. Closure of the WMUs shall be under the direct supervision of a California registered civil engineer or certified engineering geologist.

#### **Surface Impoundment Closure**

30. At closure of surface impoundments, all residual wastes, including liquids, sludges, precipitates, settled solids, and liner materials and adjacent natural geologic materials contaminated by wastes shall be completely removed and discharged to a WMU approved by Board staff. If after reasonable attempts to remove contaminated natural geologic materials, the Discharger demonstrates that removal of all remaining contamination is infeasible, the impoundment shall be closed as a landfill pursuant to Specifications 32 through 36 below.
31. If a) residual wastes are classified as non-hazardous pursuant to Title 22, CCR, Division 4, Chapter 30; b) containment features of the impoundment meet or exceed Class II landfill construction standards and performance goals as defined by Title 27, c) all liquid waste is

removed or treated to eliminate free liquids, and d) residual moisture does not exceed the moisture-holding capacity of residual wastes (even under closure conditions), a surface impoundment may be closed as a landfill pursuant to Specifications 32 through 36 below, after compaction of the residual wastes.

### **Landfill Closure**

32. At closure, each unlined MSWLF unit and each non-MSWLF unit shall receive a final cover which is designed to function with minimum maintenance and consists, at a minimum, of a two-foot thick foundation layer which may contain waste materials, overlain by a one-foot thick clay cap, and finally by a one-foot thick vegetative soil layer. Each compositely lined MSWLF unit shall receive a composite cap.
33. Vegetation shall be planted and maintained over each closed landfill unit. Vegetation shall be selected to require a minimum of irrigation and maintenance and shall have a rooting depth not in excess of the vegetative layer thickness.
34. Closed landfill units shall be graded to at least a three-percent grade and maintained to prevent ponding.
35. Areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion.
36. Any closed landfill shall be provided with at least two permanent monuments, installed by a licensed land surveyor, from which the location and elevation of all wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period.

## **C. RECEIVING WATER LIMITATIONS**

### **Water Quality Protection Standards**

The concentrations of Constituents of Concern in waters passing through the Points of Compliance shall not exceed the concentration Limits established pursuant to Monitoring and Reporting Program No. 98-184, which is attached to and made part of this Order.

## **D. PROVISIONS**

1. The Discharger shall comply with the Standard Provisions and Reporting Requirements, dated August 1997, which are hereby incorporated into this Order. The Standard Provisions and Reporting Requirements contain important provisions and requirements with which the Discharger must comply. A violation of the Standard Provisions and Reporting Requirements is a violation of these waste discharge requirements.
2. The Discharger shall comply with Monitoring and Reporting Program No. 98-184, which is attached to and made part of this Order. This compliance includes, but is not limited to, maintenance of waste containment facilities and precipitation and drainage controls and

monitoring ground water, leachate from the landfill units, the vadose zone and surface waters, throughout the active life of the waste management units and the post-closure maintenance period. A violation of Monitoring and Reporting Program No. 98-184 is a violation of these waste discharge requirements.

3. The Discharger shall maintain legible records of the volume and type of each waste discharged at each WMU and the manner and location of the discharge. Such records shall be maintained at the site until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the Board and of the State Water Resources Control Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Regional Board.
4. The Discharger shall provide proof to the Board **within sixty days after completing final closure** that the deed to the landfill facility property, or some other instrument that is normally examined during title search, has been modified to include, in perpetuity, a notation to any potential purchaser of the property stating that:
  - (a) the parcel has been used as a municipal solid waste landfill (MSWLF);
  - (b) land use options for the parcel are restricted in accordance with the post-closure land uses set forth in the post-closure plan and in WDRs for the landfill; and
  - (c) in the event that the Discharger defaults on carrying out either the post-closure maintenance plan or any corrective action needed to address a release, then the responsibility for carrying out such work falls to the property owner.
5. The Discharger shall maintain waste containment facilities and precipitation and drainage controls, and shall continue to monitor ground water, leachate from the landfill unit(s), the vadose zone, and surface waters per Monitoring and Reporting Program No. 98-184 throughout the post-closure maintenance period.
6. The Discharger shall complete the tasks outlined in these WDRs and the attached Monitoring and Reporting Program No. 98-184 in accordance with the following time schedule.

<u>Task</u>	<u>Compliance Date</u>
a. Construction of LF-2, Cell 3 and future cells, and SI-1	
(1) Submit monitoring systems plan pursuant to Section 21760(a)(3) of Title 27	30 days prior to start of construction
(2) Submit construction quality assurance plan pursuant to Section 21710(a)(5) of Title 27	30 days prior to start of liner construction
(3) Submit Preliminary Closure/Post-Closure Maintenance Plan	30 days prior to start of liner construction
(4) Submit operations plan pursuant to Section 21760(b) of Title 27	30 days prior to start of liner construction

WASTE DISCHARGE REQUIREMENTS NO. 98-184  
 STANISLAUS COUNTY DEPARTMENT OF PUBLIC WORKS  
 FINK ROAD LANDFILL FACILITY  
 CLASS II AND CLASS III LANDFILLS  
 CLASS II SURFACE IMPOUNDMENTS

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<u>Task</u>	<u>Compliance Date</u>
(5) Submit as-built plans, construction quality assurance, and certification report	30 days prior to the discharge of waste
(6) Submit work plan with schedule to replace MW-15	30 days prior to start of liner construction
(7) Submit water balance report for SI-2	30 days prior to start of liner construction
b. Closure of WMUs	
(1) Submit design plans, specifications, construction schedule, construction quality assurance plan	3 months prior to start of closure construction work
(2) Submit as-built plans, construction quality assurance, and closure certification report	within 1 month after completing closure construction
c. Submit Evaluation Monitoring Report and Feasibility Study for a Corrective Action Program pursuant to Sections 20420(k)(6) and 20425 of Title 27 for the detection of VOCs and inorganics in lysimeters beneath SI-1; SI-2, LF-2, Cell 2; and LF-3, Cell 2	30 January 1999
d. Financial Assurance Update the financial assurance mechanism for closure and postclosure maintenance costs and include funds to initiate and complete corrective action for all known or reasonably foreseeable releases per Section 22222 of Title 27.	30 January 1999
9. The Discharger shall comply with all applicable provisions Title 27 and 40 CFR, Part 258, that are not specifically referred to in this Order.	
10. The Board will review this Order periodically and may revise requirements when necessary.	

**E. FINANCIAL ASSURANCE**

The Discharger shall maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management units. The Discharger shall also maintain an irrevocable closure fund or other means to ensure adequate closure and post-closure maintenance of each waste management unit.

**F. REPORTING REQUIREMENTS**

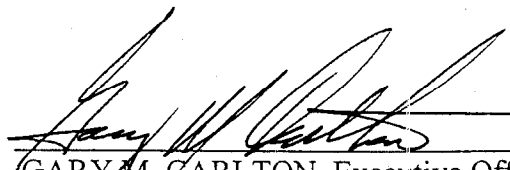
1. The Discharger shall notify the Board in writing of any proposed change in ownership or responsibility for construction or operation of the facility. The Discharger shall also notify the Board of a material change in the character, location, or volume of the waste discharge and of any proposed expansions or closure plans. This notification shall be given 120 days prior to the effective date of the change and shall be accompanied by an amended Report of Waste Discharge and any technical documents that are needed to demonstrate continued compliance with these waste discharge requirements.

WASTE DISCHARGE REQUIREMENTS NO. 98-184  
STANISLAUS COUNTY DEPARTMENT OF PUBLIC WORKS  
FINK ROAD LANDFILL FACILITY  
CLASS II AND CLASS III LANDFILLS  
CLASS II SURFACE IMPOUNDMENTS

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2. The Discharger shall notify the Board within 24 hours of any flooding, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste facilities or of precipitation and drainage control structures.
3. The Discharger shall submit a closure and post-closure maintenance plan (or submit suitable modifications to a pre-existing plan) that complies with 40 CFR 258.60 and with Title 27.
4. The post-closure maintenance period shall continue until the Board determines that remaining wastes in the landfill will not threaten water quality.
5. The owner of the facility shall have the continuing responsibility to assure protection of usable waters from discharged waste during the active life, closure, and post-closure maintenance period of the facility and during subsequent use of the property for other purposes.
6. In the event of any change in ownership of this facility, the Discharger shall notify the succeeding owner or operator, in writing, of the existence of this Order. A copy of that notification shall be sent to the Board.
7. The Discharger or persons employed by the Discharger shall comply with all notice and reporting requirements of the State Department of Water Resources with regard to the construction, alteration, destruction, or abandonment of all monitoring wells used for compliance with this Order or with Monitoring and Reporting Program No. 98-184, as required by Sections 13750 through 13755 of the California Water Code.
8. The Discharger shall submit status reports regarding the financial assurances for corrective action and closure every five years after the date of adoption of these requirements that either validates the ongoing viability of the financial instruments or proposes and substantiates any needed changes.

I, GARY M. CARLTON, Executive Officer, do hereby certify that the foregoing is a full, true, and correct Copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region on 11 September 1998.

  
GARY M. CARLTON, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. 98-184  
FOR  
STANISLAUS COUNTY DEPARTMENT OF PUBLIC WORKS  
FINK ROAD LANDFILL FACILITY  
CLASS II AND CLASS III LANDFILLS  
CLASS II SURFACE IMPOUNDMENT  
STANISLAUS COUNTY

The Discharger shall maintain water quality monitoring systems that are appropriate for detection and evaluation monitoring and that comply with the provisions of Title 27, California Code of Regulations, Division 2, Subdivision 1 Chapter 3 Subchapter 3.

Compliance with this Monitoring and Reporting Program, and with the companion Standard Provisions and Reporting Requirements, is ordered by Waste Discharge Requirements Order No. 98-184. Failure to comply with this Program, or with the Standard Provisions and Reporting Requirements, constitutes noncompliance with the WDRs and with the Water Code, which can result in the imposition of civil monetary liability.

**A. REPORTING**

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in the Standard Provisions and Reporting Requirements. Reports which do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the WDRs. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. A short discussion of the monitoring results, including notations of any water quality violations, shall precede the tabular summaries.

Field and laboratory tests shall be reported in the quarterly monitoring reports. Quarterly monitoring reports shall be submitted to the Board by the 15th day of the month following the calendar quarter in which the samples were taken. The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Board. An annual report shall be submitted to the Board which contains both tabular and graphical summaries of the monitoring data obtained during the previous twelve months, so as to show historical trends at each well.

Monitoring information for ash moisture content, leachate, groundwater, and vadose zone sampling should be submitted in one report. Separate reports may be submitted for ash waste constituent monitoring and for the annual determination of acceptable ash moisture content using the draft LRT or equivalent method acceptable to the Board. The results of any monitoring done more frequently than required at the locations specified shall be reported to the Board.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those which cannot be quantified and/or specifically identified. Metals shall be analyzed according to the method listed in Attachment E.



## **B. REQUIRED MONITORING REPORTS**

### **1. Water Quality Protection Standard Report**

The Discharger submitted a water quality protection standard in "*Financial Assurance Provisions and Article 5 Monitoring Program*," dated 13 July 1992, and a "*Water Quality Protection Standard*" report dated 29 December 1993. The Discharger has proposed new concentration limits in the *1997 Annual Monitoring Report*.

### **2. Evaluation Monitoring Report**

The Discharger is currently conducting evaluation monitoring for VOCs and elevated concentrations of several inorganics detected in lysimeters beneath SI-1; SI-2; LF-2, Cel. 2; and LF-3, Cell 2. An Evaluation Monitoring Report is due **30 January 1999**.

### **3. Annual Monitoring Summary Report**

The Discharger shall submit the Annual Monitoring Summary Report as specified in the Standard Provisions and Reporting Requirements.

### **4. Constituents-of-Concern (COC) 5 Year Report**

The Discharger shall submit reports of the results of groundwater monitoring for the Constituents of Concern every 5 years, or more frequently if required. The groundwater monitoring for COC Report shall alternate between the Fall and Spring seasons. The COC Report may be combined with a Detection Monitoring Report or an Annual Summary Report having a Reporting Period that ends at the same time.

### **5. Constituents-of-Concern (COC) Leachate Detection Report**

The Discharger shall report to the Board by no later than 31 January of a given year the analytical results of the leachate sample taken the previous Fall, including an identification of all detected COCs in Attachment D that are not on the MSWLF's COC list (non-COCs).

During any year in which a Spring leachate retest is performed, the Discharger shall submit a report to the Board, by no later than 31 July of that year, identifying all constituents which must be added to the MSWLF's COC list as a result of having been detected in both the (previous calendar year's) Fall sample and in the Spring retest sample. The parameters shall include volatile organic compounds.

## **Standard Observations**

Each monitoring report shall include a summary and certification of completion of all Standard Observations for the waste management unit, for the perimeter of the WMU, and for the receiving waters. The standard observations shall be performed on a weekly basis and shall include those elements as defined in the Standard Provisions and Reporting Requirements.

### C. MONITORING

If the Discharger, through a detection monitoring program, or the Board finds that there is a statistically significant increase in indicator parameters or waste constituents over the water quality protection standards (established pursuant to Monitoring and Reporting Program No. 98-184) at or beyond the Points of Compliance, the Discharger shall notify the Board or acknowledge the Board's finding in writing within seven days, and shall immediately resample for the constituent(s) or parameter(s) at the point where the standard was exceeded. Within 90 days, the Discharger shall submit to the Board the results of the resampling and either:

- a. a report demonstrating that the water quality protection standard was not, in fact, exceeded; or
- b. an amended Report of Waste Discharge for the establishment of a verification monitoring program, per Section 20415(e) of Title 27, which is designed to verify that water quality protection standards have been exceeded and to determine the horizontal and vertical extent of pollution.

If the Discharger, through an evaluation monitoring program, or the Board verifies that water quality protection standards have been exceeded at or beyond the Points of Compliance, the Discharger shall notify the Board or acknowledge the Board's finding in writing within seven days. Within 180 days, the Discharger shall submit to the Board an amended Report of Waste Discharge for the establishment of a corrective action program, per Section 20430 of Title 27, which is designed to achieve compliance with the water quality protection standards.

### D. REQUIRED MONITORING PROGRAMS

#### 1. Evaluation Monitoring Program

The Discharger shall collect and analyze all data necessary to assess the nature and extent of a release from any waste management unit. This assessment shall include a determination of the spatial distribution and concentration of each COC throughout the zone affected by the release. In conjunction with the assessment the discharger shall monitor groundwater, surface water, and the unsaturated zone to evaluate changes in water quality resulting from the release. Based on the data collected the discharger shall submit an engineering feasibility study for corrective action required pursuant to Section 20420 of Title 27.

For each monitored medium, all Monitoring Points assigned to evaluation monitoring, and all Background Monitoring points shall be monitored once each calendar quarter for the Monitoring Parameters listed in this Program.

For any given monitored medium, a sufficient number of samples shall be taken from all Monitoring Points and Background Monitoring Points to satisfy the data analysis requirements for a given Reporting Period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.

Groundwater sampling shall also include an accurate determination of the groundwater surface elevation and field parameters (pH, temperature, electrical conductivity, turbidity) for that Monitoring Point or Background Monitoring Point. Groundwater elevations taken prior to purging the well and sampling for Monitoring Parameters shall be used to fulfill the groundwater gradient/direction analyses required. For each monitored groundwater body, the Discharger shall measure the water level in each well and determine groundwater gradient and direction at least quarterly, including the times of expected highest and lowest elevations of the water level for the respective groundwater body. Groundwater elevations for all background and downgradient wells for a given groundwater body shall be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater gradient and direction. This information shall be included in the quarterly monitoring reports.

Statistical or non-statistical analysis should be performed as soon as the monitoring data are available

## 2. Nonhazardous Solid Waste Monitoring

The Discharger shall monitor all wastes discharged to the Class III landfill waste management units (WMUs) on a monthly basis and report to the Board as follows:

<u>Parameter</u>	<u>Report in Units of</u>	<u>Frequency of Reporting</u>
Quantity discharged	Cubic yards	Quarterly
Type of material discharged	-	Quarterly
Source(s) of material discharged	-	Quarterly
Minimum elevation of discharge	Feet M.S.L.	Quarterly
Capacity of WMU cell remaining	Percent	Annually

## 3. Designated Solid Waste Monitoring

All designated solid waste ash (boiler ash) generated from the Ogden Martin Systems of Stanislaus, Incorporated (OMSS), (formerly Stanislaus Waste Energy Company), discharged to LF-3 shall be monitored on a daily basis and reported to the Board as follows:

<u>Parameter</u>	<u>Report in Units of</u>	<u>Frequency of Reporting</u>
Quantity discharged	Tons & cubic yards	Quarterly
Minimum elevation of discharge	Feet M.S.L.	Quarterly
Capacity of WMU cell remaining	Percent	Annually

The ash monitoring program shall include appropriate sampling protocol, quality assurance/quality control (QA/QC), and statistical evaluation. Ash monitoring shall include, at a minimum, the following parameters and constituents analyzed and reported at the indicated frequency:

**TABLE I - ASH MONITORING PROGRAM**

<u>Parameter/Constituent<sup>1</sup></u>	<u>Sampling/Testing Frequency</u>	<u>Frequency of Reporting</u>
Corrosivity (pH) <sup>2</sup>	Bimonthly	Biannually
Moisture Content	Bimonthly	Biannually
TCLP Metals (Cd, Pb) <sup>3</sup>	Bimonthly	Biannually
WET Metals (Cd, Cu, Pb, Ni, Zn) <sup>3</sup>	Bimonthly	Biannually
Total Metals (Cd, Cu, Pb, Ni, Zn) <sup>3</sup>	Bimonthly	Biannually
Dioxins/Furans	Annual	Annually
Acute Aquatic Bioassay <sup>4</sup>	Annual	Annually

<sup>1</sup> Four discrete samples shall be collected and analyzed in accordance with the Ash Sampling and Analysis Monitoring Plan (as agreed to by the Department of Toxic Substances Control on September 24, 1990).  
<sup>2</sup> Bimonthly analysis of corrosivity (pH) shall be in accordance with section 66261.22, Title 22, California Code of Regulations (22 CCR).  
<sup>3</sup> Bimonthly analyses of total metals (Cd, Cu, Pb, Ni, and Zn), TCLP metals (Cd, Pb), and WET metals (Cd, Cu, Pb, Ni, and Zn) shall be in accordance with those procedures outlined in 22 CCR section 66261.24.  
<sup>4</sup> Annual analysis of acute aquatic bioassay shall be in accordance with 22 CCR section 66261.24(a)(6).

#### 4. Designated Solid Waste Moisture Content Monitoring

A combustion ash moisture monitoring plan for the OMSS facility boiler ash was developed and implemented in order to exclude wastes containing free liquid and free moisture potentially generated from compaction due to the landfilling process. The summer load checking procedure shall be followed between **1 May** and **1 October** of each year and the winter load checking procedure shall be followed between **October** and **1 May** of each year pursuant to the Combustion Ash Moisture Monitoring Plan effective **1 May 1991**. The ash moisture content shall not exceed **18 percent**. Moisture content analyses shall be in accordance with ASTM D2216.

A technical report shall be submitted by **15 January** on an annual basis summarizing the testing results and sampling and analysis methods. These reports may be submitted with annual monitoring reports and should include an evaluation of the effectiveness of the previous year's monitoring and compliance program.

#### 5. Leachate Monitoring

Leachate monitoring will be incorporated into all future expansions at the landfill. All landfill modules and leachate collection and removal systems (LCRS) sumps shall be inspected monthly for leachate generation. Upon detection of leachate in a previously dry LCRS, the Discharger shall immediately sample the leachate and shall continue to sample and report the leachate at the frequencies listed in Table I hereafter.

All LCRSs shall be tested annually to demonstrate operation in conformance with waste discharge requirements. The results of these tests shall be reported to the Board and shall include comparison with earlier tests made under comparable conditions. All visible portions of synthetic liners shall be inspected on a quarterly basis and their condition reported quarterly to the Board.

The Discharger shall monitor all leachate discharged to the Class II surface impoundments (SI-1 and SI-2) and leachate collection and recovery system (LCRS) sumps on a daily basis and report to the Board the parameters and frequencies in Table II. Separate grab samples from the LCRS outfall pipes and from the SI-1 and SI-2 LCRS sumps shall be analyzed for the following parameters and constituents and reported at the frequencies indicated below:

TABLE II - LEACHATE MONITORING PROGRAM		
Parameters	Units	Frequency
<b>Field Parameters</b>		
Quantity discharged to SI-1 & SI-2	Gallons	Monthly
Flow Rate to SI-1 & SI-2	Gallons/day	Monthly
Minimum freeboard of SI-1 & SI-2	Feet and Tenths	Monthly
Specific Conductance	µmhos/cm	Monthly
pH	pH units	Monthly
<b>Monitoring Parameters</b>		
Total Dissolved Solids (TDS)	mg/L	Quarterly
Chlorides	mg/L	Quarterly
Sulfates	mg/L	Quarterly
Nitrate Nitrogen	mg/L	Quarterly
<b>Constituents of Concern</b>		
Total Organic Carbon	mg/L	Quarterly
Carbonate	mg/L	Quarterly
Bicarbonate	mg/L	Quarterly
Total Alkalinity	mg/L	Quarterly
Chemical Oxygen Demand	mg/L	Quarterly
Hardness (as CaCO <sub>3</sub> )	mg/L	Quarterly
Kjeldahl Nitrogen (as N)	mg/L	Quarterly
Total Sulfides	mg/L	Quarterly
Volatile Organic Compounds (EPA Method 8260, see Attachment D)	µg/L	Semi-annually
Semi-Volatile Organic Compounds (EPA Method 8270)	µg/L	Semi-annually
Organochlorine Pesticide, PCBs (EPA Method 8080)	µg/L	Semi-annually
Chlorophenoxy Herbicides (EPA Method 8150)	µg/L	Semi-annually
Inorganics (dissolved) (See Attachment D for Method)	µg/L	Semi-annually

## 6. GROUNDWATER MONITORING

The groundwater surface elevation (in feet and hundredths, M.S.L.) in all wells shall be measured on a quarterly basis and used to determine the velocity and direction of groundwater flow. This information shall be displayed on a water table contour map and/or groundwater flow net for the site and submitted with the quarterly monitoring reports.

The groundwater monitoring network shall consist of "background" monitoring well MW-12 and downgradient monitoring wells which shall constitute the "points of compliance" with respect to groundwater. Downgradient monitoring wells for LF-1 shall include MW-9, MW-10, and MW-11. Downgradient monitoring wells for LF-3 and SI-1 shall include MW-15 and MW-16. Monitoring well MW-17 is upgradient or cross-gradient of SI-1 and Cell 1 of LF-3. Downgradient monitoring wells for LF-2 shall include MW-13, MW-14, and MW-18. Additional monitoring wells may be required as the landfill expands. Locations of these wells are shown on Attachment B.

Samples for all monitoring wells, at a minimum, shall be analyzed for the parameters and at the frequency specified in Table III.

TABLE III - GROUNDWATER MONITORING PROGRAM		
Parameter	Units	Frequency
Field Parameters		
Temperature	°C	Quarterly
Groundwater Elevation	Ft. & hundredths, MSL	Quarterly
Specific Conductance	µmhos/cm	Quarterly
pH	pH units	Quarterly
Turbidity	Turbidity units	Quarterly
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Quarterly
Chlorides	mg/L	Quarterly
Sulfates	mg/L	Quarterly
Nitrate - Nitrogen	mg/L	Quarterly
Volatile Organic Compounds (EPA Method 8260, See Attachment C)	mg/L	Semi-annually
Constituents of Concern		
Total Organic Carbon*	mg/L	5 years
Carbonate*	mg/L	5 years
Bicarbonate*	mg/L	5 years
Total Alkalinity*	mg/L	5 years
Volatile Organic Compounds (EPA Method 8260, See Attachment D)	µg/l	5 years
Semi-Volatile Organic Compounds (EPA Method 8270)	µg/l	5 years
Parameters		
Organochlorine Pesticide, PCBs (EPA Method 8080)	µg/l	5 years
Chlorophenoxy Herbicides (EPA Method 8150)	µg/l	5 years
Inorganics (dissolved) (See Attachment E for Method)	mg/l	5 years
* To be monitored quarterly for one year to determine a concentration limit.		

## 7. SURFACE WATER MONITORING

Surface water flows from on and around WMUs shall be monitored during significant storm events and sampled where they leave the facility boundary at locations S-1, S-2, and S-3 as shown in Attachment B. Surface water samples are to be collected after the first storm of the rainy season which produces significant flow and quarterly thereafter when water is present. Samples shall be collected from all stations and analyzed at the frequency and for the monitoring parameters specified in Table IV.

TABLE IV - SURFACE WATER MONITORING PROGRAM		
Parameter	Units	Frequency
Field Parameters		
Temperature	°C	Quarterly
Specific Conductance	µmhos/cm	Quarterly
pH	pH units	Quarterly
Turbidity	Turbidity units	Quarterly
Monitoring Parameters		
Total Suspended Solids (TSS)	mg/L	Quarterly
Total Dissolved Solids (TDS)	mg/L	Quarterly
Chlorides	mg/L	Quarterly
Sulfates	mg/L	Quarterly
Nitrate - Nitrogen	mg/L	Quarterly
Constituents of Concern		
Total Organic Carbon*	mg/L	5 years
Carbonate*	mg/L	5 years
Bicarbonate*	mg/L	5 years
Total Alkalinity*	mg/L	5 years
Chemical Oxygen Demand	mg/L	5 years
Dissolved Oxygen	mg/L	5 years
Oil and Grease	mg/L	5 years
Inorganics*(total recoverable metals) (See Attachment D for Method)	mg/L	5 years
* To be monitored quarterly for one year to determine a concentration limit.		

## 8. VADOSE ZONE MONITORING

The unsaturated zone monitoring network shall consist of "background" monitoring devices BL-1, BL-2, BL-3, and BL-4. Downgradient monitoring devices DL-1 through DL-29 shall constitute the "points of compliance" with respect to soil-pore liquid. Unsaturated zone monitoring devices shall be checked monthly for fluid and monitoring shall include the volume of fluid recovered. Samples shall be analyzed for the parameters and at the frequency in Table V below.

Unsaturated zone monitoring reports shall be submitted with the corresponding quarterly groundwater monitoring and shall include evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

**TABLE V - UNSATURATED ZONE MONITORING PROGRAM**

<u>Parameters</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters		
Specific Conductance*	µmhos/cm	Quarterly
pH*	pH units	Quarterly
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Quarterly
Chloride*	mg/L	Quarterly
Sulfate*	mg/L	Quarterly
Nitrate - Nitrogen*	mg/L	Quarterly
Constituents of Concern		
Total Organic Carbon*	mg/L	Semi-annually
Carbonate*	mg/L	Semi-annually
Bicarbonate*	mg/L	Semi-annually
Total Alkalinity*	mg/L	Semi-annually
Volatile Organic Compounds*(EPA Method 8260)	µg/L	Semi-annually
Inorganics* (totals) (See Attachment D for Method)	mg/L	Semi-annually
* To be monitored quarterly for one year in order to determine a concentration limit.		

Surface water monitoring reports shall be submitted with the corresponding quarterly groundwater monitoring and shall include evaluation of potential impacts of the facility on surface water quality and compliance with the Water Quality Protection Standard.

### WATER QUALITY PROTECTION STANDARDS

The Water Quality Protection Standard (Standard) consists of the following elements:

- Constituents of Concern;
- Concentration Limits;
- Monitoring Points;
- Points of Compliance; and
- Compliance Period.



Each of these is described as follows:

**1. Constituents of Concern**

The 'COC list' (list of Constituents of Concern required under 27 CCR 20395) shall include all constituents listed in Tables I, II, III, IV, and V (above), the Waste Discharge Requirements Order No. 98-184 and all constituents listed in Attachment E. The Constituents of Concern shall be for water-bearing media (i.e., groundwater, and surface water.) The Discharger shall monitor all COCs every five years, or more frequently as required.

**2. Concentration Limits**

The Concentration Limit for any given Constituent of Concern or Monitoring Parameter in a given monitored medium (i.e., the uppermost aquifer) at a landfill shall be in accordance with Section 20400 of Title 27, and shall be used as the basis of comparison with data from the Monitoring Points in that monitored medium.

The concentration limits for surface water and the unsaturated zone shall be determined when sufficient data is available.

**3. Monitoring Points**

The monitoring points for detection monitoring shall be those listed in this Monitoring and Reporting Program and shown on Attachment B.

Surface Water: S-1, S-2, S-3

Groundwater: MW-9, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, MW-17, MW-18 (and other monitoring wells when constructed)

Vadose Zone: BL-1, BL-2, BL-3, and BL-4, DL-1 through DL-29, inclusive (and other lysimeters when constructed)

**4. Points of Compliance**

The Points of Compliance for surface water are the downstream sampling points where surface water leaves the facility. The points of compliance for groundwater are the downgradient monitoring wells with respect to groundwater. The following are points of compliance:

LF-1: MW-9, MW-10, and MW-11

LF-2: MW-13, MW-14, and MW-18

DL-20, DL-21, DL-22, DL-23, DL-24, DL-25

LF-3: MW-15, MW-16 and DL-1 through DL-29, inclusive

SI-1: DL-14, DL-15, DL-16, DL-17, DL-18, DL-19

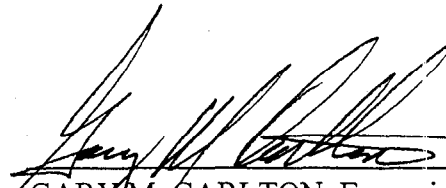
SI-2: DL-23, DL-24, and DL-25

**5. Compliance Period**

The Compliance period is the number of years equal to the active life of the MSWLF plus the closure period. Each time the Water Quality Protection Standard is exceeded (i.e., a release is discovered), the MSWLF begins a Compliance Period on the date the Board directs the Discharger to begin an Evaluation Monitoring Program. If the Discharger's Corrective Action Program (CAP) has not achieved compliance with the Standard by the scheduled end of the Compliance Period, the Compliance Period is automatically extended until the MSWLF has been in continuous compliance for at least three consecutive years.

The Discharger shall implement the above monitoring program on the effective date of this Order.

Ordered by:

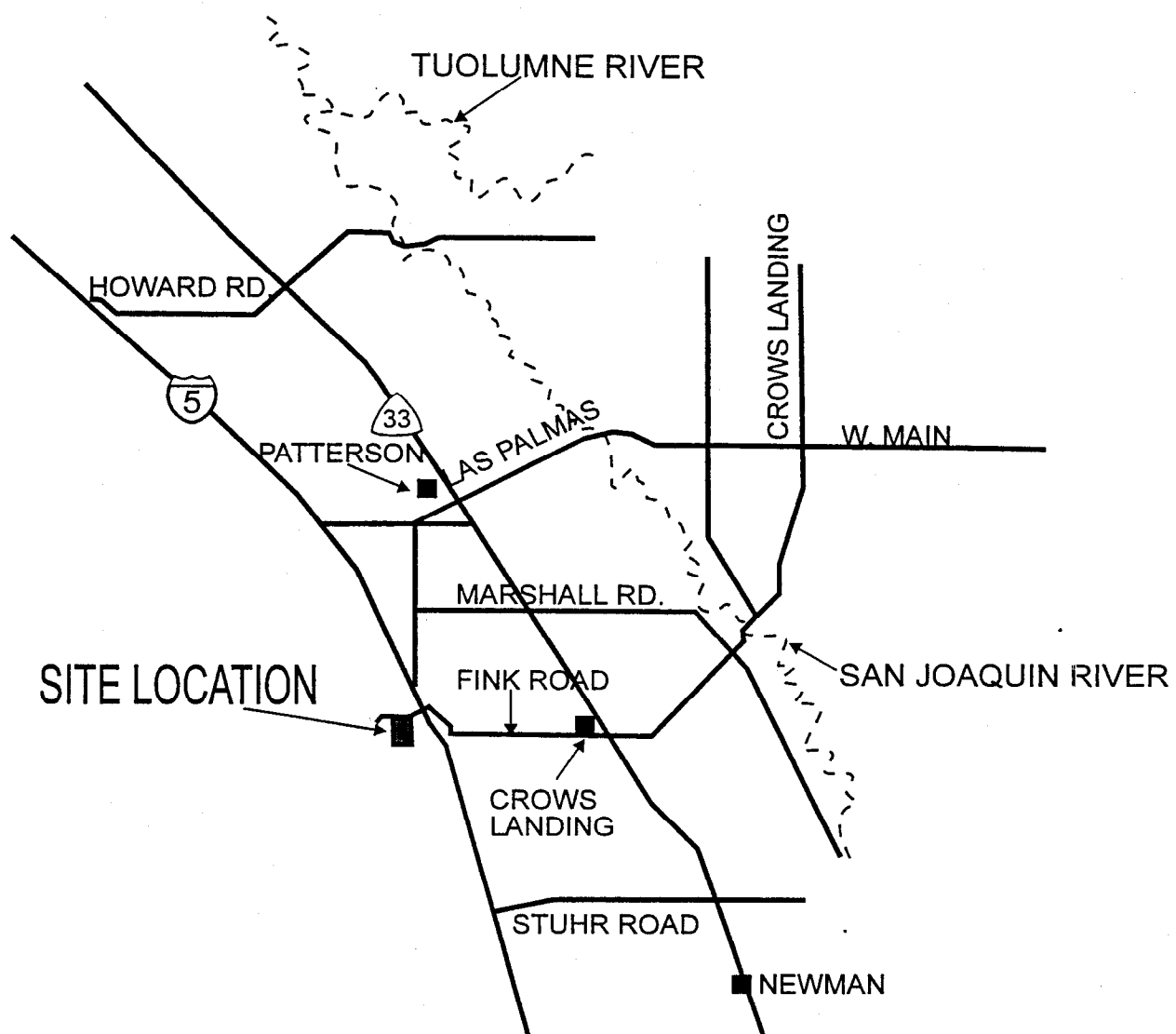
  
GARY M. CARLTON, Executive Officer

11 September 1998

(Date)

AMENDED

pal:lsb. finkrd.mrp 09.11.98



SITE LOCATION



APPROX. SCALE: 1" = 6 MILES

### Attachment A

Site Location Map

Fink Road Landfill

Class II and Class III Landfills  
Class II Surface Impoundments

Stainlaus County

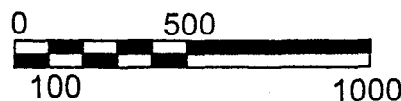
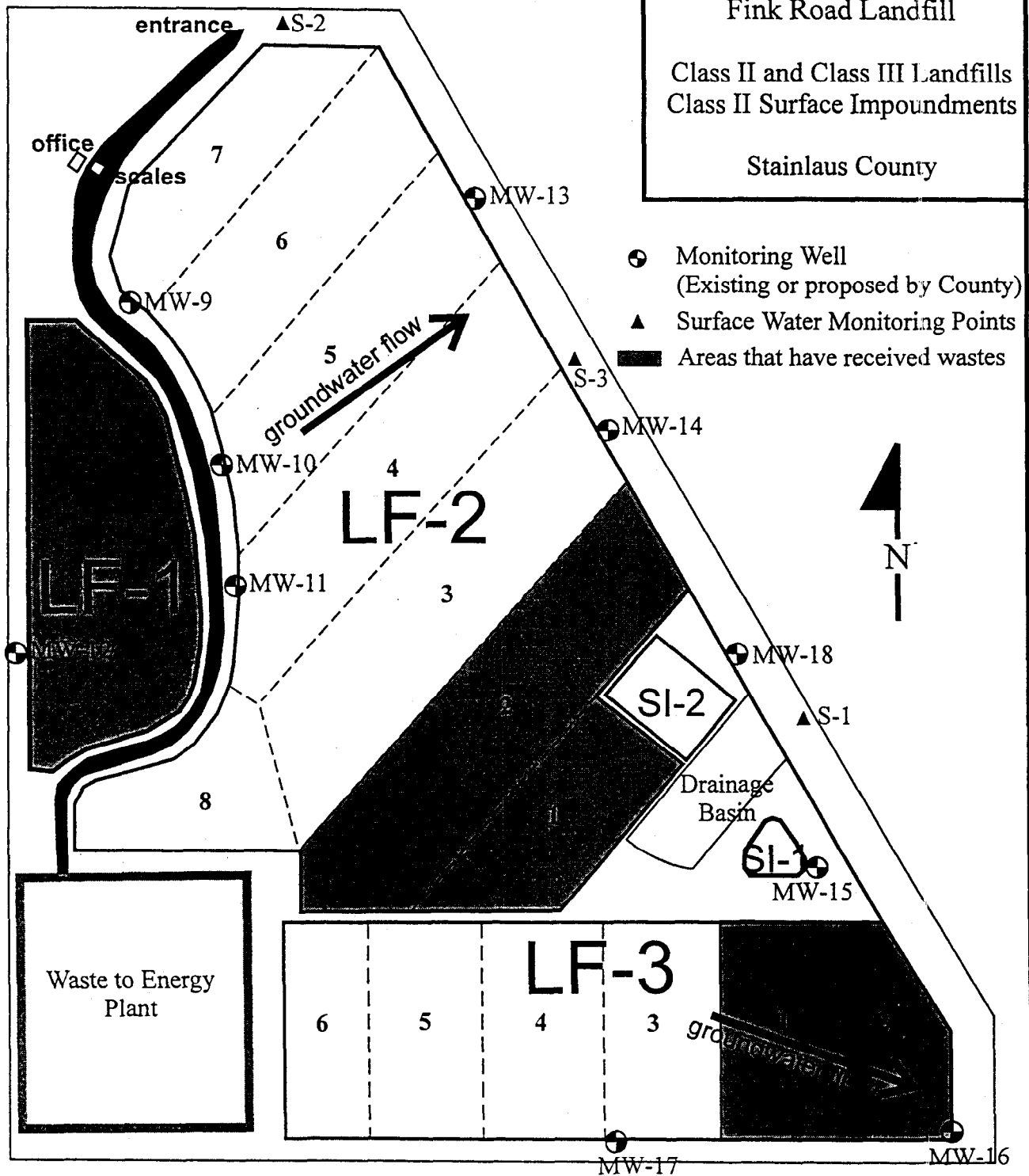
## Attachment B

### Site Location Map

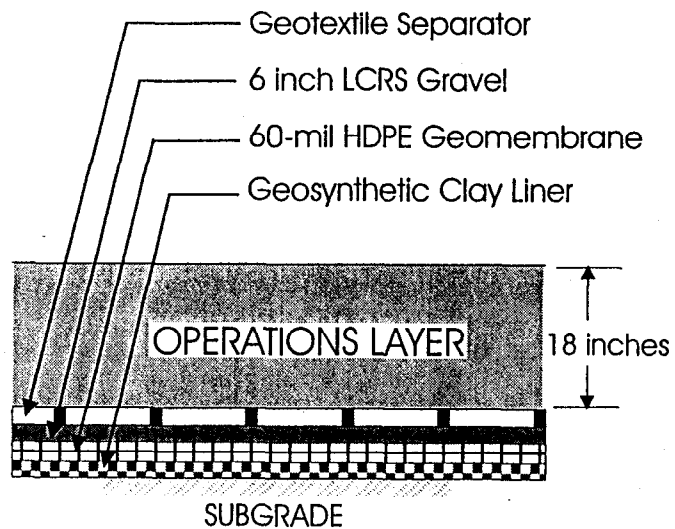
#### Fink Road Landfill

Class II and Class III Landfills  
Class II Surface Impoundments

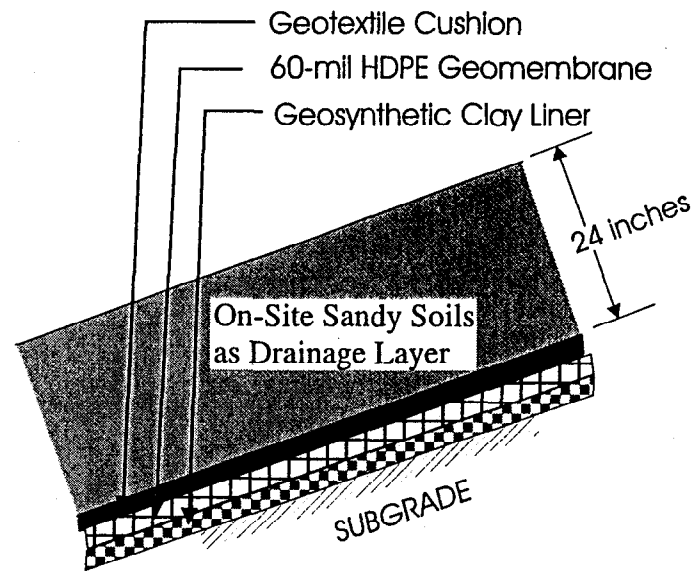
Stainlaus County



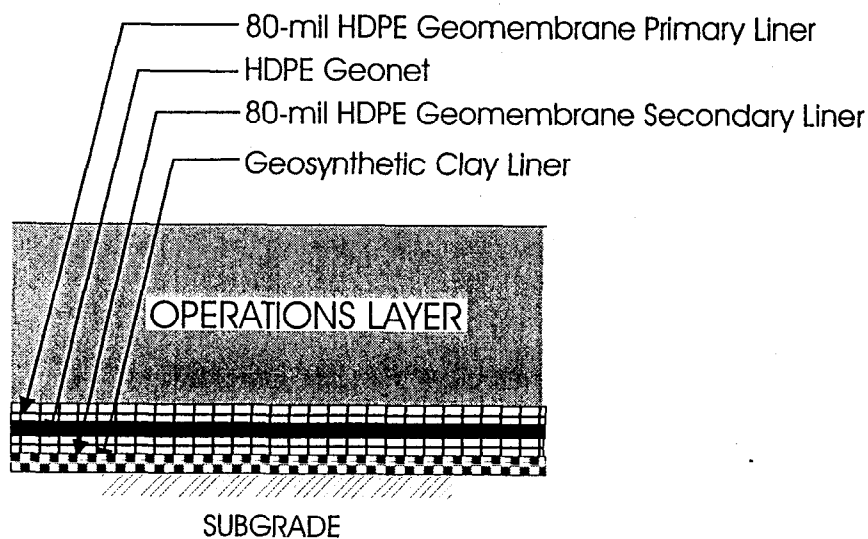
Approximate Scale in feet



**Class III Landfill, IF-2 Cell 3  
Base Liner**



**Class III Landfill, LF-2 Cell 3  
Sideslope Liner**



**Class II Surface Impoundment SI-1  
Base Liner**

## Attachment C

### Liner Systems Map

### Fink Road Landfill

Class III Landfill LF-2, Cell 3  
Class II Surface Impoundment SI-1

Stainslaus County

WASTE DISCHARGE REQUIREMENTS  
FINK ROAD LANDFILL FACILITY  
CLASS II AND CLASS III LANDFILLS  
CLASS II SURFACE IMPOUNDMENTS  
STANISLAUS COUNTY

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Attachment D

MONITORING PARAMETERS FOR DETECTION MONITORING

Surrogates for Metallic Constituents:

pH  
Total Dissolved Solids  
Specific Conductivity  
Chloride  
Sulfate  
Nitrate nitrogen

Constituents included in VOC<sub>water</sub> (by USEPA Method 8260):

Acetone  
Acrylonitrile  
Benzene  
Bromochloromethane  
Bromodichloromethane  
Bromoform (Tribromomethane)  
Carbon disulfide  
Carbon tetrachloride  
Chlorobenzene  
Chloroethane (Ethyl chloride)  
Chloroform (Trichloromethane)  
Dibromochloromethane (Chlorodibromomethane)  
1,2-Dibromo-3-chloropropane (DBCP)  
1,2-Dibromoethane (Ethylene dibromide; EDB)  
o-Dichlorobenzene (1,2-Dichlorobenzene)  
p-Dichlorobenzene (1,4-Dichlorobenzene)  
trans-1,4-Dichloro-2-butene  
1,1-Dichloroethane (Ethylidene chloride)  
1,2-Dichloroethane (Ethylene dichloride)  
1,1-Dichloroethylene (1,1-Dichloroethene; Vinylidene chloride)  
cis-1,2-Dichloroethylene (cis-1,2-Dichloroethene)  
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)  
1,2-Dichloropropane (Propylene dichloride)  
cis-1,3-Dichloropropene  
trans-1,3-Dichloropropene  
Ethylbenzene  
2-Hexanone (Methyl butyl ketone)  
Methyl bromide (Bromomethane)  
Methyl chloride (Chloromethane)  
Methylene bromide (Dibromomethane)  
Methylene chloride (Dichloromethane)  
Methyl ethyl ketone (MEK; 2-Butanone)  
Methyl iodide (Iodomethane)  
4-Methyl-2-pentanone (Methyl isobutylketone)  
Styrene

WASTE DISCHARGE REQUIREMENTS  
FINK ROAD LANDFILL FACILITY  
CLASS II AND CLASS III LANDFILLS  
CLASS II SURFACE IMPOUNDMENTS  
STANISLAUS COUNTY

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**Attachment D (continued)**

1,1,1,2-Tetrachloroethane  
1,1,2,2-Tetrachloroethane  
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)  
Toluene  
1,1,1-Trichloroethane (Methylchloroform)  
1,1,2-Trichloroethane  
Trichloroethylene (Trichloroethene)  
Trichlorofluoromethane (CFC-11)  
1,2,3-Trichloropropane  
Vinyl acetate  
Vinyl chloride  
Xylenes

WASTE DISCHARGE REQUIREMENTS  
 FINK ROAD LANDFILL FACILITY  
 CLASS II AND CLASS III LANDFILLS  
 CLASS II SURFACE IMPOUNDMENTS  
 STANISLAUS COUNTY

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Attachment E

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

**Inorganics (by USEPA Method):**

Aluminum	6010	Arsenic	7061
Antimony	6010	Lead	7421
Barium	6010	Mercury	7470
Beryllium	6010	Nickel	7520
Cadmium	6010	Selenium	7741
Chromium	6010	Thallium	7841
Chromium VI <sup>1</sup>	7197	Cyanide	9010
Cobalt	6010	Sulfide	9030
Copper	6010		
Iron	6010		
Manganese	6010		
Silver	6010		
Tin	6010		
Vanadium	6010		
Zinc	6010		

<sup>1</sup> Report all peaks identified by the EPA test methods. Ground water and leachate samples shall be analyzed and reported as dissolved. Surface water samples shall be analyzed and reported as total recoverable metals as specified in EPA-600/4-79-020 dated March 1993. Unsaturated zone water samples shall be analyzed and reported as totals.

**Volatile Organics (USEPA Method 8260):**

Acetone  
 Acetonitrile (Methyl cyanide) Acrolein  
 Acrylonitrile  
 Allyl chloride (3-Chloropropene)  
 Benzene  
 Bis(2-ethylhexyl) phthalate  
 Bromochloromethane (Chlorobromomethane)  
 Bromodichloromethane (Dibromochloromethane)  
 Bromoform (Tribromomethane)  
 Carbon disulfide  
 Carbon tetrachloride  
 Chlorobenzene  
 Chloroethane (Ethyl chloride)  
 Chloroform (Trichloromethane)  
 Chloroprene  
 Dibromochloromethane (Chlorodibromomethane)  
 1,2-Dibromo-3-chloropropane (DBCP)  
 1,2-Dibromoethane (Ethylene dibromide; EDB)  
 o-Dichlorobenzene (1,2-Dichlorobenzene)  
 m-Dichlorobenzene (1,3-Dichlorobenzene)  
 p-Dichlorobenzene (1,4-Dichlorobenzene)  
 trans- 1,4-Dichloro-2-butene  
 Dichlorodifluoromethane (CFC 12)



WASTE DISCHARGE REQUIREMENTS  
FINK ROAD LANDFILL FACILITY  
CLASS II AND CLASS III LANDFILLS  
CLASS II SURFACE IMPOUNDMENTS  
STANISLAUS COUNTY

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**Attachment E (continued)**

1,1-Dichloroethane (Ethylidene chloride)  
1,2-Dichloroethane (Ethylene dichloride)  
1,1-Dichloroethylene (1,1-Dichloroethene; Vinylidene chloride)  
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)  
trans- 1,2-Dichloroethylene (trans- 1,2-Dichloroethene)  
1,2-Dichloropropane (Propylene dichloride)  
1,3-Dichloropropane (Trimethylene dichloride)  
2,2-Dichloropropane (Isopropylidene chloride)  
1,1 -Dichloropropene  
cis- 1,3-Dichloropropene  
trans- 1,3-Dichloropropene  
Ethylbenzene  
Hexachlorobutadiene  
2-Hexanone (Methyl butyl ketone)  
Isobutyl alcohol  
Isodrin  
Methacrylonitrile  
Methyl bromide (Bromomethane)  
Methyl chloride (Chloromethane)  
Methyl ethyl ketone (MEK; 2-Butanone)  
Methyl iodide (Iodomethane)  
Methyl methacrylate  
4-Methyl-2-pentanone (Methyl isobutyl ketone)  
Methylene bromide (Dibromomethane)  
Methylene chloride (Dichloromethane)  
Naphthalene  
Propionitrile (Ethyl cyanide)  
Styrene  
1,1,1,2-Tetrachloroethane  
1,1,2,2-Tetrachloroethane  
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)  
Toluene  
1,2,4-Trichlorobenzene  
1,1,1-Trichloroethane, Methylchloroform  
1,1,2-Trichloroethane  
Trichloroethylene (Trichloroethene; TCE)  
Trichlorofluoromethane (CFC- 11)  
1,2,3-Trichloropropane  
Vinyl acetate  
Vinyl chloride (Chloroethene)  
Xylene (total)

**Semivolatile Organics (USEPA Method 8270 - base, neutral, & acid extractables):**

Acenaphthene  
Acenaphthylene  
Acetophenone  
2-Acetylaminofluorene (2-AAF)  
Aldrin  
4-Aminobiphenyl

WASTE DISCHARGE REQUIREMENTS  
FINK ROAD LANDFILL FACILITY  
CLASS II AND CLASS III LANDFILLS  
CLASS II SURFACE IMPOUNDMENTS  
STANISLAUS COUNTY

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Attachment E (continued)

Anthracene  
Benzo[a]anthracene (Benzanthracene)  
Benzo[b]fluoranthene  
Benzo[k]fluoranthene  
Benzo[g,h,i]perylene  
Benzo[a]pyrene  
Benzyl alcohol  
alpha-BHC  
beta-BHC  
delta-BHC  
gamma-BHC (Lindane)  
Bis(2-chloroethoxy)methane  
Bis(2-chloroethyl) ether (Dichloroethyl ether)  
Bis(2-chloro-1-methylethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)  
4-Bromophenyl phenyl ether  
Butyl benzyl phthalate (Benzyl butyl phthalate)  
Chlordane  
p-Chloroaniline  
Chlorobenzilate  
p-Chloro-m-cresol (4-Chloro-3-methylphenol)  
2-Chloronaphthalene  
2-Chlorophenol  
4-Chlorophenyl phenyl ether  
Chrysene o-Cresol (2-methylphenol)  
m-Cresol (3-methylphenol)  
p-Cresol (4-methylphenol)  
4,4'-DDD  
4,4'-DDE  
4,4'-DDT  
Diallate  
Dibenz[a,h]anthracene  
Dibenzofuran  
Di-n-butyl phthalate  
o-Dichlorobenzene (1,2-Dichlorobenzene)  
m-Dichlorobenzene (1,3-Dichlorobenzene)  
p-Dichlorobenzene (1,4-Dichlorobenzene)  
3,3'-Dichlorobenzidine  
2,4-Dichlorophenol  
2,6-Dichlorophenol  
Dieldrin  
Diethyl phthalate  
p-(Dimethylamino)azobenzene  
7,12-Dimethylbenz[a]anthracene  
3,3'-Dimethylbenzidine  
2,4-Dimethylphenol (m-Xylenol)  
Dimethyl phthalate  
m-Dinitrobenzene  
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)  
2,4-Dinitrophenol

WASTE DISCHARGE REQUIREMENTS  
FINK ROAD LANDFILL FACILITY  
CLASS II AND CLASS III LANDFILLS  
CLASS II SURFACE IMPOUNDMENTS  
STANISLAUS COUNTY

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**Attachment E (continued)**

2,4-Dinitrotoluene  
2,6-Dinitrotoluene  
Di-n-octyl phthalate  
Diphenylamine  
Endosulfan I  
Endosulfan II  
Endosulfan sulfate  
Endrin  
Endrin aldehyde  
Ethyl methacrylate  
Ethyl methanesulfonate  
Famphur  
Fluoranthene  
Fluorene  
Heptachlor  
Heptachlor epoxide  
Hexachlorobenzene  
Hexachlorobutadiene  
Hexachlorocyclopentadiene  
Hexachloroethane  
Hexachloropropene  
Indeno(1,2,3-c,d)pyrene  
Isophorone  
Isosafrole  
Kepone  
Methapyrilene  
Methoxychlor  
3-Methylcholanthrene  
Methyl methanesulfonate  
2-Methylnaphthalene  
Naphthalene  
1,4-Naphthoquinone  
1-Naphthylamine  
2-Naphthylamine  
o-Nitroaniline (2-Nitroaniline)  
m-Nitroaniline (3-Nitroaniline)  
p-Nitroaniline (4-Nitroaniline)  
Nitrobenzene  
o-Nitrophenol (2-Nitrophenol)  
p-Nitrophenol (4-Nitrophenol)  
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)  
N-Nitrosodiethylamine (Diethylnitrosamine)  
N-Nitrosodimethylamine (Dimethylnitrosamine)  
N-Nitrosodiphenylamine (Diphenylnitrosamine)  
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)  
N-Nitrosomethylethylamine (Methylethylnitrosamine)  
N-Nitrosopiperidine  
N-Nitrosospyrrolidine  
5-Nitro-o-toluidine

WASTE DISCHARGE REQUIREMENTS  
FINK ROAD LANDFILL FACILITY  
CLASS II AND CLASS III LANDFILLS  
CLASS II SURFACE IMPOUNDMENTS  
STANISLAUS COUNTY

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**Attachment E (continued)**

Pentachlorobenzene  
Pentachloronitrobenzene (PCNB)  
Pentachlorophenol  
Phenacetin  
Phenanthrene  
Phenol  
p-Phenylenediamine  
Polychlorinated biphenyls (PCBs; Aroclors)  
Pronamide  
Pyrene  
Safrole  
1,2,4,5-Tetrachlorobenzene  
2,3,4,6-Tetrachlorophenol  
o-Toluidine  
Toxaphene  
1,2,4-Trichlorobenzene  
2,4,5-Trichlorophenol  
2,4,6-Trichlorophenol  
0,0,0-Triethyl phosphorothioate  
sym-Trinitrobenzene

**Organophosphorus Compounds (USEPA Method 8141):**

0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)  
Dimethoate  
Disulfoton  
Methyl parathion (Parathion methyl)  
Parathion  
Phorate

**Chlorinated Herbicides (USEPA Method 8150):**

2,4-D (2,4-Dichlorophenoxyacetic acid)  
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)  
Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP)  
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)

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FINK ROAD LANDFILL FACILITY  
CLASS II AND CLASS III LANDFILLS  
CLASS II SURFACE IMPOUNDMENTS  
STANISLAUS COUNTY

The Fink Road Landfill is in western Stanislaus County, about 20 miles southwest of the city of Modesto. The site is 3.5 miles west of Crows Landing, near the intersection of Fink Road and Interstate 5. The Fink Road Landfill facility is owned and operated by Stanislaus County.

The Fink Road Landfill facility consists of the following management units (WMUs):

- LF-1: a filled 18.3-acre Class III municipal solid waste landfill, final cap constructed in 1997  
LF-2: an active 92.3-acre Class III municipal solid waste landfill, consisting of seven cells  
LF-3: an active 37-acre Class II ash monofill  
SI-1: a 1-acre Class II surface impoundment for leachate from the leachate collection and removal system (LCRS) of LF-3  
SI-2: a 1.4-acre Class II surface impoundment for leachate from the LCRS of LF-2

A waste-to-energy (WTE) cogeneration facility, operated by Ogden Martin Systems of Stanislaus, Incorporated, occupies a 16.5-acre area at the southwest corner of the site.

The completed 18.3-acre LF-1 was permitted for the disposal of municipal solid waste, infectious waste, and construction debris. These wastes are classified as "nonhazardous solid waste" or "inert waste". Landfill operations in LF-1 ceased in June 1993 following construction and commencement of operations of LF-2, Cell 1. Detection of volatile organic compounds in the groundwater downgradient of the LF-1 indicated a release from this WMU. The Discharger implemented the first phase of corrective action in 1997. The first phase consisted of final grading, final drainage, and placement of a final cap over LF-1. The second phase is to include installation of a landfill gas collection system in 1998. The Discharger has also proposed corrective action monitoring to determine the effectiveness of the corrective actions.

LF-3, a Class II landfill, is an ash monofill and accepts ash from the adjacent waste to energy plant. The plant and LF-3 have been in operation since 1988. LF-3 has a total capacity of 3.13 million cubic yards.

LF-2, Cell 1 has reached capacity and Cell 2 will reach capacity by the end of 1998. The Discharger proposes an engineered alternative from the prescriptive liner requirements of Title 27 for the next cell, LF-2, Cell 3 and future cells. The engineered alternative for the baseliner consists of, from bottom to top, a geosynthetic clay liner, a 60-mil HDPE geomembrane, six inches of LCRS gravel, a geotextile separator, and an 18-inch operations layer.

Leachate from the LF-3, Class II waste disposal cells exceed the capacity of surface impoundment SI-1. The Discharger proposes to reconstruct SI-1 to increase the impoundment storage capacity from approximately 218,000 gallons to 5 million gallons and replace the existing two-foot thick low-permeability layer with an engineered alternative. This alternative consists of, from bottom to top, a GCL, an 80-mil HDPE geomembrane secondary liner, an HDPE geonet, and an 80-mil HDPE geomembrane primary liner. The Board has routinely approved the substitution of GCLs for field constructed clay at other sites since March 1995.

Surface drainage for the northern quarter of the site is to the South Fork of Little Salado Creek, a tributary of the San Joaquin River. The remaining three quarters of the site drains to the east via a closed conduit under Interstate 5 and the California Aqueduct and thence via an open channel to Crow Creek, a tributary of the San Joaquin River.